

BOTANICAL MUSEUM LEAFLETS

HARVARD UNIVERSITY

CAMBRIDGE, MASSACHUSETTS, FEBRUARY 21, 1952

VOL. 15, No. 5

ORCHIDACEAE PERUVIANAE IX

BY

CHARLES SCHWEINFURTH

THE following article is the ninth in the series relating to the orchids of Peru. It consists of the descriptions of sixteen new species including those belonging to two new genera one of which represents a new subtribe.

The generic order follows the system proposed by Dr. Rudolf Schlechter in *Notizblatt des Botanischen Gartens und Museums Berlin-Dahlem* 9 (1926) 563-591.

Epidendrum breviracemum *C. Schweinfurth sp. nov.*

Herba parvula, epiphytica. Pseudobulbi breves, angusti, approximati, apice uni- vel bifoliati. Folium ovatum vel elliptico-ovatum vel ovato-oblongum, acutum, basi rotundatum vel subcordatum. Racemus terminalis, perbrevis, in anthesi recurvus, subumbelliformis, pauciflorus. Flores pro genere mediocres. Sepalum dorsale oblongo-lanceolatum vel elliptico-lanceolatum, acutum, mucronatum. Sepala lateralia oblique oblongo-lanceolata vel elliptico-lanceolata, dorso supra carinata. Petala linearia vel oblanceolato-linearia. Labellum columnae valde adnatum; lamina profunde trilobata; lobi laterales aliformes; lobus medius elliptico-ovatus vel ovato-lanceolatus, acutus vel acuminatus. Columna apice antice valde dilatata.

Plant small, epiphytic, up to 10 cm. tall. Roots fi-

brous, slender, glabrous, more or less elongate. Rhizome apparently abbreviated, woody. Pseudobulbs approximate, cylindric to fusiform, unifoliate or rarely bifoliate at the apex, about 3–5 cm. long, invested to above the middle with two to three imbricating tubular evanescent sheaths of which the uppermost is the largest, rather slender and striate-rugose in the dried specimen. Leaves ovate or elliptic-ovate to ovate-oblong, acute or subacute with a more or less conspicuous apicule, rounded to subcordate at the sessile base, about 4–8 cm. long, 2–2.7 cm. wide, commonly horizontally spreading, green above and red to dark purple beneath. Inflorescence terminal, abbreviated, up to 2 cm. long, recurved in anthesis, with a very short naked peduncle; raceme congested, umbelliform, about 3- to 8-flowered; floral bracts lanceolate or ovate-lanceolate, acuminate, concave, more or less shorter than the pedicellate ovary. Flowers small, but large for the plant, with widely spreading segments. Dorsal sepal oblong-lanceolate or elliptic-lanceolate, acute, mucronate, 3- or sometimes 5-nerved, 10–11.2 mm. long, 3.6–4 mm. wide, longitudinally convex. Lateral sepals obliquely oblong-lanceolate or elliptic-lanceolate, complicate-acute and mucronate with a prominent denticulate keel through the upper half, obliquely inserted at the base of the column, 3- or indistinctly 4-nerved, about 11–13 mm. long on the posterior margin and 3.6–4.2 mm. wide. Petals obliquely linear or oblanceolate-linear, acute, 1- to 3-nerved, about 9–11 mm. long and 1.3–1.9 mm. wide above the middle. Lip adnate to the column up to its apex; lamina deeply 3-lobed in about the middle, more or less deeply cordate at the base, about 4–5 mm. long in the center and 6.2 mm. wide across the lateral lobes; lateral lobes obliquely semiovate or aliform, acute to obtuse; mid-lobe more fleshy, elliptic-ovate or ovate and acute, rarely ovate-lanceolate and acuminate,

fleshy; disc with a pair of subglobose fleshy calli at the base. Column about 6.5 mm. long at the back, strongly dilated above in front, with a denticulate rarely crenulate clinandrium.

This little plant appears to be allied to several Venezuelan species, especially to *Epidendrum Arminii* Reichb.f. and to *E. Moritzii* Reichb.f. However, it differs from both in having much shorter broader leaves and a dissimilar mid-lobe of the lip.

Cuzco: Prov. of Urubamba, "Huiñaihuaina," Inca ruins, at 2550 meters altitude, epiphytic in forest, leaves purple beneath, perianth pinkish white, March 10, 1944, *C. Vargas 4122*.

JUNÍN: Prov. of Tarma, Agua Dulce, at 2400 meters altitude, on dwarf moss-covered trees in highland forest, abundant in restricted area, leaf above pale bluish green with purple central vein and 10 whitish parallel veins and uniform deep purple beneath with no marked veins, flowers pale flesh-red with reddish lines and dots, tip of petals and base of lip pale yellow-green, March 12, 1948, *F. Woytkowski Univ. Calif. Bot. Gard. (Berkeley) 4th Exped. Andes 39456* (TYPE in Herb. Ames No. 63152); same locality at 2000 meters altitude, on tree in low highland forest, stem dark red, leaf "thick, cushion-like, with sunken lines along rim; its surface is covered with tiny, sunken dots," beneath uniform dark red with similar tiny, sunken dots, sepals pale green with red lines, petals pale yellow, March 18, 1948, *F. Woytkowski Univ. Calif. Bot. Gard. (Berkeley) 4th Exped. Andes 35490*.

***Epidendrum crassum* C. Schweinfurth sp. nov.**

Herba mediocris, saxicola. Caulis e basi decumbenti erectus, crassus, omnino paucifolius. Folia oblongo-ovata vel breviter oblonga, subacuta, vaginis imbricatis articulata. Inflorescentia erecta, quam folia multo longior, laxe paniculata cum ramis paucis substrictis. Flores parvi, longe pedicellati, in siccitate nigri. Sepala carnea, tubulari-revoluta, expansa oblanceolata vel anguste obovata, lateralia obliqua et paulo longiora. Petala lineari-oblanceolata. Labellum convexum, transversum, plusminusve profunde trilobatum, basi cordatum; lobi laterales ovato-semiorbiculares; lobus medius transversus. Columna brevis, apice antice valde dilatata.

Plant medium-sized, about 29 cm. tall. Roots fibrous, glabrous, whitish, few. Stem stout, erect from a decumbent base, entirely enveloped by loose scarious tubular sheaths which are imbricating and leaf-bearing except at the base, about 14 cm. high (not including the decumbent base). Leaves distichous, deciduous below, persistent near the apex of the stem, oblong-ovate or shortly oblong, ascending, subacute, up to 5 cm. long and 1.8 cm. wide, with a broad clasping base. Inflorescence much surpassing the leaves, suberect, loosely paniculate with few short ascending lateral branches, about 13.7 cm. long. Floral bracts lanceolate or linear-lanceolate, long-acuminate, spreading, up to 11 mm. long below, much shorter than the slender pedicellate ovary. Flowers small, numerous, loose, blackened in drying, with spreading perianth parts. Sepals fleshy, with strongly revolute sides. Dorsal sepal when expanded oblanceolate to narrowly obovate, acute with a dorsal mucro, prominently 3-nerved or indistinctly 5-nerved, up to about 8.1 mm. long and 3.9 mm. wide when expanded. Lateral sepals obliquely oblong-oblanceolate or oblong-obovate, with the mucronate apex somewhat recurved, 3- to 5-nerved, up to 9 mm. long and 3.7 mm. wide. Petals linear-oblanceolate, acute, lightly oblique, 1-nerved, up to 7.8 mm. long and 2 mm. wide. Lip adnate to the column up to its apex, convex, more or less deeply 3-lobed, broader than long, cordate at base, up to 4.4 mm. long from the center of the base to the middle of the mid-lobe and 6.6 mm. wide; lateral lobes ovate-semiorbicular with more or less lobulate margins; mid-lobe transversely subquadrate to irregularly semiorbicular, subtruncate to lightly retuse in front; disc bicallose at base. Column short, strongly dilated above in front, up to 5.5 mm. high at the back.

Apparently this species lacks any close allies.

The specific name is descriptive of the thickness of the stem, sepals and lip of this species.

PUNO: Prov. of Carabaya, "Ollachea a pte. Ackopampa," at 3100 meters altitude, on rocks or cliffs, December 31, 1947, *C. Vargas 6994* (TYPE in Herb. Ames No. 64897).

Epidendrum laceratum *C. Schweinfurth sp. nov.*

Herba nana, epiphytica. Caules graciles, simplices vel basi paulo ramosi, vaginis tubulatis maxima pro parte foliiferis omnino celati. Folia laxe disticha, patentia vel adscendentia, linearia, apice rotundato apiculata, basi amplexentia. Inflorescentia plusminusve sessilis, umbelliformis, pauciflora. Flores parvi, albi. Sepalum dorsale lineari-lanceolatum, abrupte acutum. Sepala lateralibus oblique oblongo-lanceolata, apice complicata et mucronata. Petala elliptico-linearibus, obtusa. Labellum columnae valde adnatum, in circuitu late ovatum cum partibus inferioribus utrinque conspicue lacerato-dentatis et tertia parte anteriore triangulari-ovata et obtusa. Columna brevis, recta, apice utrinque bidentata.

Plant dwarf, epiphytic, about 4.5 cm. high. Roots fibrous, slender, glabrous, at the base and lower portion of the stems. Stems simple or somewhat branched near the base, slender, lightly flexuous, entirely concealed by loose tubular sheaths which are slightly dilated above and (except for the lowermost ones) are leaf-bearing. Leaves distichous, spreading or ascending, linear, rounded at the apex with a more or less distinct apicule, sessile and clasping at the base, up to 2.1 cm. long and 2.5 mm. wide on the upper portion of the plant, often with revolute margins. Inflorescence sessile or subsessile, umbelliform, erect, with about five or less congested flowers. Floral bracts linear-lanceolate, acute, exceeding half of the bialate pedicellate ovary. Flowers small, white. Dorsal sepal linear-lanceolate, abruptly acute, about 5.5 mm. long and 1.2 mm. wide, 3-nerved. Lateral sepals ob-

liquely oblong-lanceolate, complicate and mucronate at the apex, dorsally carinate, about 5.8 mm. long and 2 mm. wide, 3-nerved. Petals elliptic-linear, lightly oblique, obtuse, about 5 mm. long and 1.2 mm. wide, 1-nerved. Lip adnate to the column up to its apex, broadly ovate in outline, concave in the middle of the base, with a fold on each side in natural position, the lower two thirds on each side being prominently and irregularly lacerate-dentate and the anterior third triangular-ovate, entire and obtuse, indistinctly 3-nerved (with the mid-nerve prominent), lightly cordate at the base, about 4.8 mm. long and equally wide when expanded. Column short, straight, somewhat dilated in front, with two teeth on each side (the lower tooth much the larger), about 2.7 mm. long. Anther cordate-ovoid, 2-celled with each cell 2-chambered. Pollinia 4, complanate-pyriform.

This little species is apparently without close allies.

Cuzco: Prov. of Paucartambo, Sta. Isabel to Asunción, epiphyte at 1800 meters altitude, January 4, 1946, *C. Vargas 5583* (TYPE in Herb. Ames No. 63168).

***Epidendrum subliberum* C. Schweinfurth sp. nov.**

Herba pusilla, epiphytica, ramosa. Caulis ramosus; rami breves, vaginis arctis imbricatis obtecti. Folia plura, prope ramorum apicem congesta, linearia, apice complicato mucronata, rigida. Inflorescentiae terminales, unicae, pendulae, racemosae. Racemi subdense multiflori. Flores perparvi. Perianthii partes patentes vel reflexae. Sepalum dorsale ovale vel oblongo-ellipticum, obtusum. Sepala lateralalia similia, leviter obliqua, subacuta. Petala multo angustiora, oblique lanceolata, subacuta. Labelum columnae basi adnatum, transversum, in circuitu perlate ovatum, antice trilobatum; lobi laterales compare magni, late patentes, ovato-rotundati; lobus medius compare parvus, semiorbicularis. Columna parva, recta.

Plant small, slender, branching, epiphytic, about 17.5 cm. tall from the base of the stem to the tip of an erect leaf. Roots numerous, fibrous, glabrous, near or at the very base of the stem. Stems about 10 cm. or less high, consisting of short mostly strict branches; branches slender or somewhat thickened above, entirely concealed by imbricating tubular evanescent sheaths of which the upper three or four are leaf-bearing. Leaves erect-ascending, linear, mucronate at the apex, clasping at the sessile conduplicate base, up to 7.5 cm. long and 5 mm. wide, shining. Inflorescences terminal on the upper branches, solitary, pendent, racemose, about 8.6 cm. or less long; peduncle very short, bearing several small lanceolate long-attenuate bracts; racemes subdensely many-flowered, about 8 cm. or less long. Floral bracts lanceolate, long-attenuate, exceeding one half of the slender glabrous pedicellate ovary. Flowers very small, "dark blue," with widespreading or reflexed segments. Dorsal sepal oval or oblong-elliptic, obtuse, prominently 1-nerved with a pair of short lateral indistinct nerves, about 3.4 mm. long and 2 mm. wide. Lateral sepals similar, subacute, lightly oblique, slightly broader above, about 3.8 mm. long and 2 mm. wide. Petals much narrower than the sepals, obliquely lanceolate, subacute, about 3.5 mm. long and 1.2 mm. wide, 1-nerved, with somewhat irregular margins. Lip adnate to the base of the column, transverse, from an abbreviated broadly cuneate claw abruptly dilated into the lamina, about 4.2 mm. long; lamina distinctly 3-lobed in front, subcordate at base, about 6 mm. wide, with irregular margins; lateral lobes relatively large, obliquely ovate-rounded, horizontally spreading; mid-lobe relatively small, semiorbicular, about 1 mm. long and 2 mm. wide at base, 3-nerved with the lateral nerves branching. Column small, about 2 mm. high. Anther 2-celled, with each cell 2-cham-

bered. Pollinia 4, complanate, obliquely suborbicular.

This little species appears to be without close allies. Whereas its vegetative aspect clearly suggests a member of the section *Eupidendrum*, the almost free lip is abnormal and remarkable.

The specific name is in allusion to the character of the lip.

Cuzco: Prov. of Paucartambo, Pillahuata, epiphyte in rain-forest, at 3400 meters altitude, December 11, 1942, *C. Vargas 3011* (TYPE in Herb. Ames No. 63167).

Epidendrum tenuispathum *C. Schweinfurth* sp. nov.

Herba elata, epiphytica. Caulis crassus, distichifolius. Folia lanceolata vel oblongo-lanceolata vel elliptico-lanceolata, acuta, basi amplexicaulia, late patentia. Inflorescentia terminalis, paniculata, basi spatha scariosa magna oblecta. Flores pro genere minores, perianthii partibus patentibus. Sepalum dorsale elliptico-oblancheolatum, subacutum. Sepala lateralia late et oblique elliptico-oblancheolata, dorso carinata cum carina in mucronem producta. Petala oblancheolato-linearia, leviter curvata, acuta. Labellum columnae valde adnatum; lamina prope medium profunde trilobata; lobi laterales rotundato-dolabriformes; lobus medius brevis, latus, retusus cum mucrone in sinu; discus basi bicallosus. Columna arcuata, antice supra valde dilatata.

Plant tall, epiphytic, 0.6–0.9 m. high, according to the collector's notes. Stem stout, altogether concealed by the sheaths of the leaves. Leaves distichous, apparently numerous (six in the specimen present), 4 cm. or less apart, widely spreading, lanceolate to elliptic-lanceolate or oblong-lanceolate, acute and minutely apiculate, amplexicaul below, chartaceous in the dried specimen, about 8–13 cm. long, 2.3–2.9 cm. wide. Inflorescence terminal, erect, loosely paniculate, apparently lacking

any free peduncle, with the rachis about 16 cm. long, the lowest branch erect and mostly concealed by a loose scarious conduplicate spathe about 6 cm. long. Floral bracts mostly linear-lanceolate, scarious, more or less shorter than the slender glabrous pedicellate ovary. Flowers rather small for the genus with spreading segments, with the ovary, sepals, and petals dark red, and the lip pink to white. Sepals 3-nerved or obscurely 5-nerved below. Dorsal sepal elliptic-oblongate, subacute, about 1.5 cm. long and 5-5.6 mm. wide. Lateral sepals broadly and very obliquely elliptic-oblongate, acute, dorsally carinate with the keel produced into a prominent mucro, about 1.63 cm. long measured along the posterior portion and 6 mm. wide. Petals obliquely oblongate-linear to linear-spatulate, more or less curved, acute at the sometimes rounded apex, 1-nerved, about 1.35 cm. long and 2-2.6 mm. wide above. Lip adnate to the column up to its apex; lamina conspicuously 3-lobed near the middle, cordate at the base, retuse and bluntly apiculate at the apex (of the mid-lobe), about 9 mm. long through the middle and 14-17.5 mm. wide across the lateral lobes when expanded; lateral lobes obliquely rounded-dolabriform, with the outer margins minutely and irregularly crenulate; mid-lobe short, much broader than long, from a broad base more or less abruptly dilated into a pair of short rounded minutely crenulate lobules; disc at base with a pair of small fleshy calli and thickened through the middle. Column strongly and abruptly dilated in front from below the middle, rounded-retuse at the apex, about 6.8 mm. long at the back.

This species differs from the Colombian *Epidendrum Sanctae Martae* Schltr. in having broader leaves, an indistinct (rather than elongate) peduncle, as well as in dissimilar petals and lobes of the lip. It varies from the

Colombian *E. towarens* Reichb.f. in having more numerous leaves, an indistinct peduncle, and relatively elongate floral bracts.

HUANCAVELICA: Prov. of Tayacaja, Ampureco woods, on trail between Salcabamba and Surcubamba, at 2900 meters altitude, common epiphyte on mossy tree trunk, January 15, 1939, H. E. Stork and O. B. Horton 10427 (TYPE in Herb. Ames No. 65457).

***Orleanesia peruviana* C. Schweinfurth sp. nov.**

Herba pro genere mediocris. Rhizoma radicesque desunt. Caulis crassus, erectus, vaginis tubulatis imbricatis omnino celatus. Folia angusta, laxe disticha, late patentia, in siccitate conduplicata, oblongo-lanceolata vel lanceolato-linearia, apice inaequaliter bilobulata. Pedunculus semisigmoideus, vaginis tubulatis arctis multis ornatus. Inflorescentia laxe paniculata cum ramis paucis brevibus paucifloris. Flores parvi. Sepalum dorsale ovato-lanceolatum, breviter acuminatum. Sepala lateralia breviora sed latiora, oblique oblongo-ovata, acuta. Petala linearia, leviter decurva. Labellum simplex, late obovatum, apice leviter retuso-truncatum, basi cuneatum, ecallosum. Columna brevis, arcuata, bialata, in pedem brevem extensa.

Plant medium-sized for the genus. Rhizome and roots lacking in our specimen. Stem erect, apparently stout, about 18 cm. tall, entirely concealed by about 10 tubular imbricating sheaths which are largest in the middle, and all except the lower ones leaf-bearing. Leaves narrow, loosely distichous, conduplicate in the dried plant, wide-spreading and lightly decurved, oblong-lanceolate to lanceolate-linear when expanded, abruptly and unequally bilobulate at the apex, 6.5–13.3 cm. long, about 1 cm. wide or less when viewed from the side, rigid-coriaceous. Peduncle in our specimen semisigmoid, about 27 cm. long, adorned with 15 close tubular scarious sheaths which are larger and imbricating at the base, and

gradually smaller and more separate above. Inflorescence nodding, loosely paniculate with three or four short lateral branches; branches apparently 4-flowered, with a rachis about 1 cm. long. Bracts semiamplexicaul, broadly ovate, concave, acute, those subtending the branches much larger than the floral bracts. Flowers small, "mignonette and dark violet," distinctly pedicelled. Dorsal sepal ovate-lanceolate, short-acuminate, 6.5–7 mm. long, about 2.6 mm. wide when expanded, with revolute or recurved sides. Lateral sepals shorter and broader than the dorsal sepal, obliquely oblong-ovate, acute and apiculate, about 6 mm. long and 3 mm. wide. Petals obliquely linear, acute, slightly decurved, 6–6.5 mm. long, 0.9–1 mm. wide. Lip adnate to the column-foot, broadly obovate, retuse-truncate and apiculate at the apex, cuneate at the base, ecallose, with the upper margins on each side irregularly crenulate-erose, 6.5–6.9 mm. in greatest length, 5.5–5.8 mm. wide near the middle. Column short, stout, lightly arcuate, broadly winged especially above, concave in front, 3-toothed at the apex, about 4 mm. high at the back, extended into a short stout foot. Anther incumbent, semiovoid, 2-celled with each cell divided into two chambers. Pollinia 4, complanate, with the outer ones smallest. Pedicel and ellipsoid ovary finely pubescent.

This species, representing a genus hitherto unrecorded from Peru, seems to be allied to the Brazilian *Orleanesia yauaperyensis* Rodr. However, it differs from that species in having eight leaves instead of four, in having larger (especially broader) blades which are obtuse and bilobulate, rather than acute. The flowers of this plant are also rather smaller than in the Brazilian species.

LORETO: Vicinity of Iquitos, at 100 meters altitude, on dead tree in clearing, November–December 1936, G. Klug 10021 (TYPE in Herb. Ames No. 62029).

Vargasiella *C. Schweinfurth gen. nov.*

Divisio: Acrotonae. Tribus: Kerosphaereae. Series: Acranthae. Flores mediocres. Perianthii partes liberae, patentes, subcarnosae. Sepala ovato-oblonga (raro oblonga). Petala ovato-elliptica, paulo breviora. Labellum simplex, arcuato-recurvum, columnae pedi affixum, marginibus anterioribus valde undulatis. Columna brevis, crassa, quam segmenta cetera duplo brevior, in pedem brevem extensa. Anthera parva, incumbens, galeata. Pollinia quattuor, cereacea, parva, per paria inaequalia, valde complanato-subglobosa.

Herba epiphytica vel terrestris. Caulis elongatus, basi decumbens et rhizomatosus radices breves sparsas tomentosas infra producens, cum ramis unicis vel perpaucis strictis, supra plurifolius. Folia plusminusve elliptica, convoluta, vaginis articulata. Inflorescentia unica, e folii superioris axilla exoriens, laxa pluriflora, folia valde superans.

Vargasiella peruviana *C. Schweinfurth sp. nov.*

Herba gracilis, mediocris. Caulis vaginis tubulatis evanidis omnino tectus, supra foliis pluribus ornatus. Folia disticha, elliptica vel oblongo-elliptica vel elliptico-lanceolata, articulata. Inflorescentia subterminalis, laxa racemosa. Sepalum dorsale ovato-oblongum, complicato-acutum vel mucronatum, concavum. Sepala lateralia similia, acuta, conspicue mucronata, cymbiformia, dorso carinata, quam sepalum dorsale paulo majora. Petala elliptico-ovata, acuta. Labellum simplex, in positu naturali arcuato-recurvum et columnae parallelum, expansum ovato-oblongum, basi cordatum, apice rotundato abrupte acutum. Columna brevis, crassa.

Plant slender, terrestrial or epiphytic. Stem elongate, many-jointed, decumbent and rhizomatose below, with one or few strict branches near the middle, entirely con-

cealed by tubular sheaths which waste away into fibres except in the leafy upper portion, below producing scattered roots which are fibrous, stout, apparently short, mostly simple and densely tomentose (especially when young). Leaves several, on the upper portion of the stem, congested when young and scattered at maturity, distichous, convolute, elliptic to oblong-elliptic or elliptic-lanceolate, acuminate, cuneate below, sessile or indistinctly petioled, articulated to close tubular sheaths, membranaceous, with three to five nerves more prominently exerted beneath, 5.6–13.5 cm. long, about 2–2.5 cm. wide, increasing in size from the lowermost leaves up to the median ones. Inflorescences much surpassing the leaves, arising from the axil of an upper leaf, erect or nearly so, racemose above, up to about 33.5 cm. long; peduncle about 21.4 cm. long, provided with several remote sheaths which are tubular below and lanceolate-acuminate above; raceme loosely about 15-flowered or less; floral bracts oblong, acute, spreading, up to 1.4 cm. long. Flowers medium-sized, with campanulate-spreading segments, subfleshy. Dorsal sepal ovate-oblong, complicate-acute or mucronate, concave, 5-nerved, with the margins (especially above) very minutely cellular-erose, about 1.32 cm. long and 6 mm. wide. Lateral sepals similar, ovate-oblong, acute, cymbiform, dorsally carinate with the keel produced into a conspicuous mucro, 5- or 6-nerved, lightly oblique, about 1.45 cm. long and 7 mm. wide near the concave base. Petals elliptic-ovate, acute, apiculate, 5-nerved, about 1.2 cm. long and 6 mm. wide. Lip simple, arcuate-recurved and parallel to the column with the sides erect in natural position, articulated to the column-foot, nearly equaling the lateral sepals, with the anterior margins strongly undulate, about 1 cm. long and 6 mm. wide when expanded; disc when forcibly expanded ovate-oblong, cordate at the base,

rounded and acute or abruptly apiculate at the tip, with a pair of fleshy callose thickenings (which are more or less radiantly lobed below) in the lower half. Column short, stout, with a narrow fleshy wing on each side throughout, subtruncate above, about 7 mm. high at the back, produced at the base at a right angle into a short fleshy ovate-oblong foot. Anther relatively small, galeate, 1-celled. Pollinia 4, in two unequal pairs, without appendages, strongly complanate-subglobose, waxy. Ovary prominently 6-sulcate.

This concept has a very distinctive appearance, but seems to lack affinity with any genus known to me. It appears to be abnormal in respect to the inflorescence which must be interpreted as being pseudoterminal in the axil of an upper leaf. Yet it surely does not represent the truly lateral inflorescence characteristic of Schlechter's series *Pleuranthae*. The pollinia appear to be entirely without appendages, either viscid disc or caudicle, and thus to indicate a relationship to the subtribe *Liparideae*. However, it differs from all members of that subtribe (except from certain equitant-leaved plants of the Old World), in having articulated leaves and subfleshy or firm flowers. I therefore propose a new subtribe, **Var-gasielleae**, to be inserted in Schlechter's arrangement before the *Liparideae*.

It is with great pleasure that I dedicate this genus to Dr. César Vargas of Cuzco, Peru, whose wide explorations in that country, often in the face of serious obstacles, have added immeasurably to our knowledge of the Peruvian orchid flora.

Cuzco: Prov. of Paucartambo, Pillahuata, epiphyte in rain-forest, at 3400 meters altitude, floral segments white lined with pink, December 11, 1942, *C. Vargas 3010*; Prov. of Convención, hills of Pintobamba, in humus of forest, at about 2400 meters altitude, perianth white with pinkish lip, March 3, 4, 1943, *C. Vargas 3288* (TYPE in Herb. Ames No. 65952).

Buesiella *C. Schweinfurth gen. nov.*

Divisio: Acrotonae. Tribus: Kerosphaereae. Series: Pleuranthae. Flores minuti, racemosi. Perianthium campanulatum, partes liberae. Sepala oblonga vel elliptico-oblonga, cymbiformia. Petala ovali-ovata, leviter concava. Labellum non crassum, simplex, panduratum, columnae rigide affixum, medio bicarinatum. Columna conspicua, clavata, supra non alata, apoda. Anthera incumbens, galeata. Pollinia duo, oblique pyriformia, cereacea, sine stipite et caudicula ut videtur.

Herba epiphytica, rhizomatosa. Pseudobulbi approximati, pergraciles, unifoliati. Folia angustissima. Inflorescentiae laterales, basales, racemosae.

Buesiella pusilla *C. Schweinfurth sp. nov.*

Herba parva, gracilis, epiphytica, rhizomatosa. Radices fibrosae, comparate crassae. Pseudobulbi numerosi, approximati, in siccitate pergraciles, apice unifoliati. Folia anguste linearia, plusminusve conduplicata. Inflorescentiae laterales, basales, supra laxe racemosae et pauciflorae. Flores minuti. Perianthii partes liberae, campanulatae. Sepala cymbiformia, uninervia. Sepalum dorsale elliptico-oblongum. Sepala lateralia oblonga, paulo longiora et angustiora. Petala ovali-ovata, sepalis latiora. Labellum columnae adnatum, simplex, longitudinaliter concavum, expansum panduratum, acutum, medio bicarinatum. Columna valde clavata. Anthera incumbens, galeata. Pollinia duo, oblique pyriformia.

Plant small, slender, epiphytic, with an ascending rhizome which is concealed by evanescent sheaths. Roots relatively stout, fibrous, glabrous, whitish, more or less elongate. Pseudobulbs numerous, approximate, very slender and striate-rugose in the dried specimen, cylindrical, unifoliate at the apex, about 2–3.3 cm. long, sometimes curved, subparallel with the rhizome. Leaves nar-

rowly linear, more or less conduplicate (especially below), acute or subacute, gradually long-narrowed below, gently recurved in the dried specimen, up to 19 cm. long and 4.5 mm. wide above the middle. Inflorescences lateral at the base of the pseudobulbs, filiform, suberect, sometimes arcuate above, racemose in the upper part, clothed below the raceme with several imbricating foliaceous sheaths when young, about 8 cm. or less long; raceme few- (3- to 9-) flowered, loose. Floral bracts infundibuliform, long-acuminate, scarious. Flowers minute, membranaceous, with the perianth campanulate. Sepals free, cymbiform with lightly saccate base, 1-nerved, dorsally carinate. Dorsal sepal elliptic-oblong when expanded, subacute, about 3 mm. long and 1.6 mm. wide. Lateral sepals oblong, subacute, about 3.5 mm. long and 1 mm. wide. Petals oval-ovate, acute, 1-nerved, lightly concave, about 3 mm. long and nearly 2 mm. wide. Lip subparallel to the column, adnate to the column, longitudinally concave in natural position, simple, pandurate, with the anterior half triangular-ovate and acute, and the slightly narrower posterior portion rounded at the base, about 2.7 mm. long and 1.4 mm. wide across the ovate part; disc thickened through the center below, the thickening expanded into a pair of erect semirhombic keels in the middle. Column stout, strongly dilated above (and thus clavate) but not winged, about 1.6 mm. high at the back. Anther galeate, obovoid. Pollinia 2, waxy, obliquely pyriform, apparently without either stipe or caudicles.

This little plant is remarkable for having flowers with an apparent lack of both a viscid disc and caudicles to the pollinia. It is referable to Schlechter's *Pleuranthae* and it appears to be allied to his subtribe *Bulbophylleae*. However, it is quite different from any of the genera that have been assigned to that group in having a membra-

naceous lip rigidly attached to the base of the column, and a column without either wings or foot.

We have named this little species for an assiduous collector of Peruvian plants.

Cuzco: Ccochapampa, at the height of Ccochayoc, at 1000 meters altitude, February 21, 1931, *C. Bues s.n.* (TYPE in Herb. Field Mus. No. 660010).

***Xylobium latilabium* C. Schweinfurth sp. nov.**

Herba magna, epiphytica ut videtur. Pseudobulbus oblongo-pyriformis vel cylindraceus, unifolius. Folium conspicue petiolatum; lamina oblanceolato-oblonga, abrupte acuta, cum nervis tribus conspicuis; petiolus longus, gracilis. Inflorescentia crassa, erecta, brevis, supra densius racemosa, cum floribus grandibus luteis. Sepalum dorsale lanceolato-oblongum. Sepala lateralibus multo majora, obliquissime triangulari-ovata et falcato-decurva, dorso superne carinata. Petala oblongo-lanceolata, sepalis minora. Labellum columnae pedi adnatum, prope apicem trilobatum, in situ naturali tubulari-concavum, cum lobis lateralibus semiobovatis erectis; lobus medius subquadratus vel ovato-subquadratus, latior quam longior; discus callo centrali oblongo apice lobulato percursus et lineis verrucosis ornatus. Columna perbrevis, in pedem longum extensa.

Plant large, apparently epiphytic. Rhizome stout, woody, only a fragment present in our specimen. Roots fibrous, glabrous, stout. Pseudobulb oblong-pyriform or cylindric, striate-sulcate in the dried specimen, unifoliate, about 6.5 cm. long. Leaf conspicuously petioled; lamina oblanceolate-oblong, rather abruptly acute, long-cuneate below, with three nerves very prominent beneath, about 43 cm. long and 7.8 cm. wide above the middle, chartaceous; petiole slender, deeply channelled, subterete below, about 10 cm. long. Inflorescence short, stout, erect, about 15 cm. high (separated and incom-

plete at the base in our specimen); peduncle mostly concealed by three or more imbricating sheaths which are loose, scarious and apparently finely maculate; raceme rather densely many- (20-) flowered, about 8.5 cm. long. Floral bracts narrowly lanceolate, scarious, concave, about equaling the pedicellate ovary. Flowers vivid yellow, waxy, with spreading segments, rather large for the genus. Sepals with strongly revolute margins. Dorsal sepal narrowly lanceolate-oblong, obtuse or subacute, about 1.8–1.95 cm. long and 5.5–7 mm. wide. Lateral sepals much larger than the dorsal sepal, very obliquely triangular-ovate and falcate-decurved, acute, about 2 cm. long measured along the posterior part and 1.3–1.5 cm. wide near the base, forming a prominent mentum with the column-foot, dorsally carinate above the middle. Petals oblong-lanceolate, obtuse or abruptly acute, lightly oblique, about 1.7 cm. long and 4.5–5.5 mm. wide. Lip attached to the foot of the column near its apex, 3-lobed near the front, tubular-concave with erect-incurved lateral lobes in natural position, suborbicular in outline when expanded, about 1.8 cm. long in the middle and subequally wide or wider when expanded; lateral lobes semiobovate (including the basal portion), terminating in a truncate crenulate apex (without a free portion); mid-lobe porrect, subquadrate or ovate-subquadrate, broader than long, retuse to rounded in front, about 5 mm. long and 8.1 mm. wide; disc adorned with a broad central oblong apically lobulate callus and with numerous verrucose fleshy lines above the nerves. Column very short and stout, about 6 mm. long, produced into an elongate foot about 1 cm. or more in length.

This species appears to lack any close allies. Superficially it would pass for a form of *Xylobium squalens* (Lindl.) Lindl., but the large flowers and the lip are very different.

JUNÍN: Prov. of Tarma, Vitoc, "eyebrow of the jungle," at 1800 meters altitude, "lip petal inside has 8 purple lines on each side," *F. Woytkowski* 10 (TYPE in Herb. Ames No. 65456).

It seems very probable that the following collection, which is represented in the Ames Herbarium by a photograph of a flowering specimen accompanied by floral drawings and notes, is referable to this concept. Its data are:

Ost-Peru: Stromgebiet des Marañon von Iquitos aufwärts bis zur Santiago-Mündung am Pongo de Manseriche, ca. $77^{\circ}30'$ West, Mündung d. Santiago, Flutfreier Hochwald, 160 m. Höhe u. d. M., Bl. hellgelb, am den Innenseiten der Seitenlappen der Lippe mit karminen Adern, auf einer Liane in 4 m. Höhe, 11 November 1924, G. Tessmann 4516.

***Lycaste longisepala* C. Schweinfurth sp. nov.**

Herba verisimiliter epiphytica, magna. Rhizoma repens. Pseudobulbi congesti, oblongo-ovoidei vel anguste ellipsoidei, apice tri- vel quadrifoliati. Folia elliptica vel anguste lanceolato-elliptica, acuta vel acuminata, infra sensim petiolato-angustata. Scapus foliis multo brevior, lateralis, uniflorus. Flos nutans, cum sepalis perlongis patentibus. Sepala similia, elliptico-lanceolata, acuminata, lateralia inferne obliqua et mentum saccatum formantia. Petala multo minora, erecta, expansa elliptico-oblonga, acuta. Labellum leviter recurvum, medio distincte trilobatum cum lobis lateralibus parvis erectis; lobus medius rotundato-ovatus, apice late rotundatus, cum marginibus eroso-crenulatis; discus infra medio carnosus-carinatus et medio callo plano ovato-oblongo ornatus. Columna gracilis, infra in pedem brevem latum extensa.

Plant large, with a creeping rhizome. Pseudobulbs closely approximate, oblong-ovoid to narrowly ellipsoid, 3- or 4-leaved at the apex (the young shoot shows five leaves), longitudinally sulcate in age, up to 10.8 cm. long. Leaves elliptic to narrowly lanceolate-elliptic,

acute to acuminate, gradually narrowed below to an indistinct deeply channelled petiole (up to 7.6 cm. long), with several conspicuous ribs, up to about 46.3 cm. long including the petiole and 8.9 cm. wide. Scape lateral, 1-flowered, erect, clothed with three remote tubular sheaths, about 20.6 cm. high. Pedicellate ovary pluri-sulcate, recurved, shorter than the erect tubular-infundibuliform bract which is similar to the upper sheath. Flower nodding, very large, with spreading sepals. Sepals "bronze-tan" on inner surface. Dorsal sepal elliptic-lanceolate, subacuminate, concave below, about 8.9–10 cm. long and 2.15 cm. wide. Lateral sepals similar, elliptic-lanceolate or oblong-lanceolate, acuminate, oblique at the base and forming a spur-like mentum with the column-foot, about 9–10 cm. long measured along the posterior margin and 2–2.2 cm. wide in the middle. Petals much smaller than the sepals, erect with recurved apex in natural position, pale creamy yellow shading to white at the apex, when expanded elliptic-oblong, acute, oblique at the base, about 4.4–4.8 cm. long and 1.6–2 cm. wide near the middle. Lip gently recurved with the sides of the lower half incurved in natural position, within, golden yellow at the base, lighter in the middle and then maroon extending to the white tip; lamina when expanded oblong-elliptic, sharply but not deeply 3-lobed in the middle, narrowly cuneate below, about 4.6–5 cm. long and 1.9 cm. wide across the lateral lobes; lateral lobes narrowly semiobovate, with a short rounded crenulate free apex; mid-lobe round-ovate to oblong-ovate, with erose-crenulate margins, broadly rounded in front, about 2.1–2.4 cm. long and 1.8 cm. wide, separated from the lateral lobes by a narrow sinus; disc with a narrow callose line in the middle below and with a broad oblong-ovate callus between the lateral lobes. Column slender, about 1.7–1.9 cm. high at the back, finely velutinous,

produced into a short somewhat broader foot which is about 9 mm. long.

This concept appears to be remarkable in its genus by reason of the elongate sepals and much shorter petals. It was described from a photograph, and notes of the vegetative parts, together with a flowering scape preserved in liquid, supplied by the University of California Botanical Garden (Berkeley), culture no. 50.1896.

PERU: Sariapampa (?), *Woytkowski* 289.

Zygopetalum Klugii *C. Schweinfurth* sp. nov.

Herba epiphytica, pro genere mediocris, rhizomate abbreviato. Folia plura, in circulo flabelliformi, ad vaginas conduplicatas articulata; lamina oblongo-obovata vel oblongo-ob lanceolata, abrupte acuta, infra sensim angustata. Inflorescentiae breves, uniflorae. Flos pro genere parvus, segmentis patentibus. Sepalum dorsale oblongo-lanceolatum, acuminatum. Sepala lateralija majora, oblique lanceolata, acuminata. Petala elliptico-lanceolata, acuminata, sepalo dorsali paulo minora. Labellum breviter unguiculatum, in hypochilium et epichilium divisum; hypochilium conduplicato-concavum, antice digiti-formi-fimbriatum; epichilium elliptico-lanceolatum, acuminatum. Columna conspicua, infra late bialata.

Plant epiphytic, medium-sized for the genus, without or with an abbreviated rhizome, without pseudobulbs or apparent stems. Roots fibrous, rather slender, glabrous, whitish. Leaves several in a flabelliform cluster, articulated to conduplicate basally imbricating sheaths the outer members of which are much smaller with abbreviated or no blades; lamina oblong-obovate to oblong-ob lanceolate (rarely an abbreviated outer blade is ovate), abruptly acute, long-narrowed below, membranaceous, with three to seven nerves exerted beneath, up to 26 cm. long and 5.5 cm. wide (the uppermost blade longest

and relatively narrower than the others). Inflorescences about five in our specimen, basal in the axils of sheaths, relatively short, 1-flowered; peduncles filiform, provided below with several loose tubular scarious sheaths, about 5.5 cm. or less long. Flower rather small for the genus, white and whitish green, with spreading segments. Dorsal sepal oblong-lanceolate, acuminate, 7-nerved, about 2.24 cm. long and 7.6 mm. wide. Lateral sepals very obliquely lanceolate with the dorsal margin nearly straight and the anterior margin broadly rounded, acuminate, 9-nerved near the base, about 2.68 cm. long and 1 cm. wide near the concave base. Petals elliptic-lanceolate, lightly oblique, acuminate, 6- or 7-nerved near the base, about 2.1 cm. long and 7 mm. wide. Lip about 2.4 cm. long in natural position, shortly clawed, sharply divided into a hypochile and epichile; claw short, broad, fleshy, sulcate, about 2 mm. long; hypochile conduplicate-concave with the broadly rounded anterior margin irregularly digitiform-fimbriate, the center within having a low fleshy keel which is irregularly dilated near the apex; epichile attached to the back of the hypochile in the middle, elliptic-lanceolate, acuminate with a complicate apex, about 9-nerved, lightly concave, about 1.8 cm. long and 7 mm. wide. Column conspicuous, extended in front into an indistinct broad fleshy foot, about 1.6 cm. high at the back, broadly winged on each side through the lower half, the wings being gradually dilated upward to an abruptly truncate tip.

This species differs from *Zygopetalum lucidum* Rolfe from British Guiana and Venezuela in having broader leaves, more membranaceous flowers, narrower petals, and dissimilar features of the lip.

LORETO: Vicinity of Iquitos, epiphyte at 100 meters altitude, July 1937, G. Klug 10109 (TYPE in Herb. Ames No. 65442).

Maxillaria angustibulbosa *C. Schweinfurth* sp.
nov.

Herba epiphytica, cum rhizomate repenti flexuoso, adscendenti. Pseudobulbi distantes, peranguste cylindracei, apice unifoliati, vagina conduplicata foliifera utrinque velati. Folia elliptico-oblonga vel anguste lanceolato-oblonga, acuta, breviter petiolata. Inflorescentiae singulae, laterales, uniflorae, cum pedunculo vaginis pluribus ventricosis fere omnino oblecto. Flos minor. Sepalum dorsale valde concavum, oblongo-ovatum, acutum. Sepala lateralibus oblique ovato-triangularia, acuta, cum columnae pede mentum conspicuum formantia. Petala sepalo dorsali similia, basi obliqua. Labellum in circuitu oblongo-ellipticum, supra medium leviter trilobatum; lobi laterales angusti, erecti, apice semiorbiculares; lobus medius oblongo-ovatus, late obtusus, valde carnosus. Columna brevis, crassus, in pedem longum extensa.

Plant epiphytic, with an ascending creeping rhizome. Rhizome flexuous, entirely invested by close imbricating scarious sheaths. Roots numerous, fibrous, filiform, branching, glabrous. Pseudobulbs obliquely inserted on the rhizome and subparallel to it, apparently about 4 cm. apart, linear-cylindric, strongly complanate, unifoliate at the apex, finely rugose-striate (in the dried specimen), about 4 cm. long, the lower part on each side concealed by one or two conduplicate leaf-bearing sheaths. Leaves more or less petioled; lamina elliptic-oblong to narrowly lanceolate-oblong, acute, cuneate-narrowed to the base, up to 16 cm. long and 1.8 cm. wide, that on the pseudobulb longer and narrower than those present on the surrounding sheaths, thinly chartaceous; petiole slender, channelled, up to 2.2 cm. long (on the pseudobulb). Inflorescences solitary, lateral, at the base of a leaf-bearing sheath below the pseudobulb, ascending, 1-flowered,

more or less shorter than the leaves, almost entirely concealed by several ventricose imbricating sheaths which become much shorter near the base. Flower rather small, yellow, with somewhat spreading segments. Dorsal sepal oblong-ovate, strongly concave, acute, complicate-mucronate and dorsally carinate at the apex, about 1.3 cm. long and 6.4 mm. wide. Lateral sepals very obliquely ovate-triangular, acute and dorsally carinate at the apex, about 1.3 cm. long on the posterior margin, forming a conspicuous mentum with the column-foot, about 8.6 mm. wide at the base. Petals similar to the dorsal sepal, oblong-ovate, shortly acuminate, long-adherent to the column at the oblique base, about 1.1 cm. long and 5.8 mm. wide. Lip in natural position erect, parallel to the column and lightly recurved, when expanded oblong-elliptic in outline, more or less 3-lobed above the middle, about 1.1 cm. long and 4.6 mm. wide; lateral lobes erect, narrow, broadly rounded above; mid-lobe oblong-ovate, broadly obtuse, fleshy-thickened with the mid-nerve carinate beneath, about 3 mm. long and 3 mm. wide, with minutely irregular margins; disc with a central longitudinal thickening which passes into a prominent linear-oblong sulcate callus. Column short, stout, clavate, sulcate in front, about 5 mm. high at the back, extended into a much longer apically upcurved foot.

This species appears to lack any close allies.

Cuzco: Prov. of Paucartambo, Sta. Isabel, Kosñipata, at 1800 meters altitude, January 4-5, 1946, *C. Vargas 5533* (TYPE in Herb. Ames No. 65927).

Maxillaria fasciculata *C. Schweinfurth sp. nov.*

Herba epiphytica, vagans. Caulis gracilis, teres, remote pseudobulbifer. Pseudobulbi anguste ellipsoidei, unifoliati, basi vaginis pluribus distichis imbricatis celati. Folia in vivo valde carnosae, linearia, plusminusve conduplicata, apice subacuta vel rotundata. Flores e vaginarum

axillis exorientes, perparvi, cum sepalis recurvis. Sepalum dorsale lanceolato-oblongum, acutum. Sepala lateralialia oblongo-lanceolata, acuta, cum basi saccata obliqua. Petala elliptico-oblonga, basi apiceque obliqua. Labellum recurvum, prope medium trilobatum; lobi laterales comparate parvi, dentiformes, incurvi; lobus medius multo major, subquadratus, apice bilobatus. Columna gracilis, in pedem longum producta.

Plant epiphytic, sprawling, only a portion present. Stem slender, terete, arcuate, consisting of distinct segments separated by pseudobulbs, each one about 5.5 cm. long with about six or seven internodes that were concealed by evanescent sheaths and bearing at their extremities a few fibrous glabrous roots. Pseudobulbs narrowly ellipsoid, complanate-subtetragonous in section, unifoliate at the apex, concealed below by about two pairs of distichous, imbricating, evanescent leaf-bearing sheaths. From the axil of an inner sheath at the base of the pseudobulb emerges a young shoot up to about 3.5 cm. high which is gradually dilated upward and concealed by several close, imbricating, conduplicate sheaths of which the upper ones are leaf-bearing. Leaves very fleshy in the living plant, linear, more or less conduplicate (especially below), subacute to rounded at the more or less unequally bilobed apex, up to 9.3 cm. long and 1 cm. wide when expanded. Flowers very small, apparently emerging in pairs from the axils of the sheaths on the young shoots, with the sepals and the anterior half of the lip recurved in natural position. Sepals and petals membranaceous. Dorsal sepal lanceolate-oblong, acute, about 5.5 mm. long and 1.5 mm. wide. Lateral sepals oblong-lanceolate, with a very oblique saccate and dilated base, about 6 mm. long measured along the posterior margin and 2 mm. wide near the base. Petals elliptic-oblong, somewhat oblique at the base and near the subacute

apex, about 5.4 mm. long and 2 mm. wide. Lip strongly arcuate-recurved with the lower half erect and parallel to the column in natural position, sharply 3-lobed near the middle, nearly 7.2 mm. long when expanded; lateral lobes relatively very small, triangular-dentiform, obtuse or acute, incurved; mid-lobe much larger, subquadrate, bilobed in front; disc much thickened below, the thickening developed into a transverse lobulate callus between the lateral lobes. Column rather slender, dilated above, about 3 mm. high at the back, produced into a subequally long foot.

This species is allied to *Maxillaria purpurea* (Spreng.) Ames & Correll, but differs markedly in the lip which lacks a claw and is bilobed in front.

JUNÍN: Prov. of Tarma, Utcuyacu, *F. Woytkowski* 21 (liquid material supplied by Univ. Calif. Bot. Gard. (Berkeley) culture no. 50.1844) (TYPE in Herb. Ames no. 66124 and in Ames liquid coll.).

***Maxillaria spathulata* C. Schweinfurth sp. nov.**

Herba epiphytica, cum rhizomate elongato. Pseudobulbi distantes, complanato-ovoidei, unifoliati, basi vaginis duabus conduplicatis foliiferis utrinque circumdati. Folia variabilia, ovato-elliptica vel elliptico-oblonga vel lanceolata, acuta vel acuminata, sessilia. Flores parvi, in vaginarum axillis, subcarnosi. Sepalum dorsale lanceolatum, acuminatum. Sepala lateralibus oblique et anguste triangulari-lanceolata, basi cum columnae pede mentum breve formantia. Petala minora, oblanceolato-linearibus. Labellum paulo infra medium acute trilobatum, expansum oblongo-spathulatum; lobi laterales parvi, erecti, porrecti; lobus medius multo major, rotundato-obovatus, leviter retusus; discus inter lobos laterales callo subquadrato retuso ornatus. Columna crassa, in pedem brevem producta.

Plant epiphytic, with an elongate rhizome bearing pseudobulbs at remote intervals. Segments of the rhizome

slender, straight, subterete, entirely concealed by close tubular imbricating sheaths, about 9–11 cm. long, joining at an obtuse angle beneath the pseudobulb where the rhizome is more or less branching. Pseudobulbs situated at the angles formed by the segments of the rhizome, complanate-ovoid, unifoliate at the apex, up to 2 cm. high, rugose-striate in the dried specimen, clothed at base by two pairs of imbricating conduplicate sheaths, the upper ones leaf-bearing. Leaves variable in size and shape, ovate-elliptic, lanceolate or elliptic-oblong, sharply acute or acuminate, sessile at the complicate base, up to 8.4 cm. long and 3.4 cm. wide. Flowers small, solitary in the axils of bracts surrounding the pseudobulbs, subsessile, reddish with a cream-colored lip. Sepals and petals subparallel, rather fleshy. Dorsal sepal lanceolate or oblong-lanceolate, acuminate, concave, about 10 mm. long and 3 mm. wide. Lateral sepals obliquely and narrowly triangular-lanceolate, shortly acuminate, about 10 mm. long on the posterior margin, forming with the column-foot a mentum about 4 mm. long. Petals oblanceolate-linear, acute, lightly concave above, about 8.9 mm. long and 1.8 mm. wide. Lip slightly shorter than the sepals, lightly recurved in natural position, sharply 3-lobed with the lateral lobes incurved to form a tubular-involute basal portion, oblong-spatulate when forcibly expanded, lightly retuse in front, about 9.5 mm. long in the middle and 6.1 mm. wide above; lateral lobes small, linear-oblong, with the short free apex porrect, ovate-oblong, obliquely rounded and obscurely denticulate at the apex and about 1.6 mm. long; mid-lobe much larger than the lateral lobes, round-obovate, cuneate below, broadly rounded above, retuse, with crenulate-erose margins, fleshy-thickened above in the middle, about 6.8 mm. long; disc thickened below, with the thickening terminating in a subquadrate retuse callus between the

free apices of the lateral lobes. Column short, stout, sub-cylindric, about 4 mm. high at the back, extended into a short stout concave foot.

This species is closely allied to *Maxillaria tafallae* (Reichb.f.) C. Schweinf., but differs in having larger flowers with sharper sepals and petals, and with a cuneate, not subcordate, base to the lip.

The specific epithet is in allusion to the shape of the lip.

Cuzco: Prov. of Paucartambo, between Sta. Isabel and Asunción, at 1800 meters altitude, January 4, 1946, C. Vargas 5532 (TYPE in Herb. Ames No. 63310).

Maxillaria Woytkowskii C. Schweinfurth sp. nov.

Herba epiphytica, mediocris. Rhizoma abbreviatum ut videtur. Pseudobulbus breviter et crasse cylindricus vel oblongo-ovoideus, valde anceps, unifolius. Folium distincte petiolatum; lamina elliptico-oblonga, acuta, infra cuneata; petiolus gracilis. Inflorescentiae breves, vaginis laxis pluribus omnino obtectae. Flos pro genere mediocris. Sepalum dorsale oblongum, apice rotundatum sed mucronatum. Sepala lateralia lanceolato-oblonga, obtusa sed mucronata, leviter obliqua. Petala oblongo-lanceolata vel elliptico-lanceolata, supra et infra angustata, acuta. Labellum tubulari-involutum, expansum in circuitu anguste ellipticum, supra medium leviter trilobatum cum lobo medio ovato-oblongo et multo incrassato; discus medio unicallosus.

Plant epiphytic, medium-sized. Rhizome apparently abbreviated. Roots fibrous, flexuous, glabrous, slender. Pseudobulb oblong-cylindric or oblong-ovoid, strongly ancipitous, unifoliate, about 2.5–3 cm. long, finely rugose in the dried plant, surrounded below by two pairs of imbricating concave sheaths which are scarious and non-leaf-bearing, the upper one being much larger. Leaf distinctly petioled; lamina elliptic-oblong, acute, cuneate

below, subcoriaceous, about 16.5 cm. long and 3.2 cm. wide, with the mid-nerve sulcate on the upper surface and carinate beneath; petiole rather slender, channelled, 2.7 cm. long. Inflorescences one or two, erect or spreading, much shorter than the leaf; peduncle slender, entirely or nearly concealed by six loose convolute scarious sheaths, about 7 cm. long; pedicellate ovary concealed and surpassed by a similar convolute sheath. Flower medium-sized for the genus, rigid-nervose. Dorsal sepal oblong, abruptly rounded but with a dorsal subapical mucro, lightly concave, about 2.1 cm. long and 8 mm. wide. Lateral sepals lanceolate-oblong, lightly oblique, obtuse but with a dorsal subapical mucro, about 2.3 cm. long measured along the posterior margin and 7.6 mm. wide at the base. Petals oblong-lanceolate or elliptic-lanceolate, narrowed above and below, acute, slightly oblique, about 1.9 cm. long and 5.4 mm. wide across the middle. Lip lightly recurved and tubular-involute in natural position, narrowly elliptic in outline when expanded, lightly 3-lobed above the middle, about 1.6 cm. long and 7.6 mm. wide across the middle when expanded; lateral lobes without free apex, rounded above; mid-lobe ovate-oblong, very fleshy, rounded at the apex, about 5.1 mm. long; disc with a fleshy band which is indistinct through the center of the lower half but gradually becomes more defined in the middle and forms an ovate-oblong obtuse fleshy callus. Column stout, arcuate, about 9.5 mm. long, with a minute erose-margined clinandrium, produced into a stout foot about 7 mm. long.

This species appears to have several more or less close allies. It differs from the Colombian *Maxillaria brunnea* Linden & Reichb.f. in its smaller leaves, dissimilar acute petals, as well as in the color of the flowers. It is distinguished from the Colombian *M. Shepheardii* Rolfe by its narrower leaves, dissimilar petals and shorter lip with

different lobing. It differs from the Bolivian *M. simacana* Schltr. in having lanceolate, not linear, petals, and dissimilar lobes of the lip.

JUNÍN: Prov. of Tarma, Vitoc, at 1400 meters altitude, "a most common, epiphytic species with a wide distribution in the region of Chanchamayo from ca. 900–1,400 m. a. s. level," leaves pale green with a bluish tint, sepals and petals white with a delicate yellow green hue, lip white with purple margins and a white tip, column with a pale pink tip and a deep purple orifice and base, December 1942, *F. Woytkowski* 2 (TYPE in Herb. Ames No. 65455).

***Trichopilia gracilis* C. Schweinfurth sp. nov.**

Herba epiphytica, mediocris. Rhizoma abbreviatum. Pseudobulbi numerosi, congesti, anguste cylindracei, unifoliati. Folium lineari-oblongum vel elliptico-oblongum, acutum, infra breviter angustatum. Inflorescentia basalis, suberecta, laxissime bi- vel triflora, quam folium brevior. Flos minor, campanulatus, albus. Sepala longitudinaliter concava, crassiora. Sepalum dorsale lineare vel lanceolato-lineare, acuminatum. Sepala lateralia libera, linearia vel lanceolato-lineararia, leviter decurva, longe acuminata, quam sepalum dorsale angustiora. Petala lanceolato-lineararia, leviter decurva, acuminata, sepalis paulo breviora. Labellum circa columnam infra convolutum, expansum oblongo-obovatum, apice late rotundatum, utrinque supra leviter contractum. Columna perbrevis, apice erecto denticulato.

Plant epiphytic, medium-sized for the genus, about 29.5 cm. or less high. Rhizome abbreviated. Roots fibrous, rather stout, glabrous. Pseudobulbs caespitose, numerous, narrowly cylindric, sometimes more or less arcuate, unifoliate at the apex, 5–11 cm. long and up to 9 mm. wide, striate-sulcate, concealed at the base by a few firm evanescent sheaths. Leaf linear-oblong to elliptic-oblong, acute, shortly narrowed below to a sessile or shortly petioled complicate or conduplicate base, subcoriaceous,

11.7–18 cm. long, 1.4–2.1 cm. wide, with the mid-nerve sulcate above and prominently exserted beneath. Inflorescence basal, suberect, very loosely 2- to 3-flowered above, shorter than the leaf or rarely (including the terminal flower) subequalling the leaf; peduncle slender, about 6.5–15 cm. long, with three close tubular separated sheaths; floral bracts closely clasping and much shorter than the pedicellate ovary, apparently ovate-oblong when expanded. Pedicellate ovary up to 4.5 cm. long. Flowers rather small for the genus, campanulate, white with orange on the throat of the lip. Sepals rather fleshy, longitudinally concave. Dorsal sepal linear or lanceolate-linear, acuminate, 5- or 6-nerved, about 2.6–3.2 cm. long and 4 mm. wide when expanded. Lateral sepals free, obliquely linear or lanceolate-linear, lightly decurved, long-acuminate with a conduplicate apex, 3- to 5-nerved, about 2.6–3.3 cm. long and 3 mm. wide when expanded. Petals obliquely lanceolate-linear, more or less lightly decurved, acuminate with a subconduplicate apex, 3-nerved (5-nerved near the base), about 2.5–3.1 cm. long and 3.5–4 mm. wide. Lip slightly shorter than the sepals with the lower portion convolute around the column in natural position, oblong-obovate, broadly rounded in front, lightly contracted on each side above the middle, cuneate below, with the central line below adnate to the lower half of the column, about 2.5–2.8 cm. long and 1.6–1.8 cm. wide near the apex when expanded; disc with a short more or less distinct fleshy keel below the middle. Column short, stout, slightly dilated upward, terminating in an upright somewhat bilobed denticulate clinandrium, about 9 mm. high at the back.

This species is allied to *Trichopilia juninensis* C. Schweinf., but differs in having smaller flowers, free lateral sepals and a simple lip which lacks the lateral keels

of that species. It differs from *T. fragrans* (Lindl.) Reichb.f. in having much narrower pseudobulbs and leaves and smaller flowers with a simple lip.

JUNÍN: Prov. of Tarma, Agua Dulce, at 1800 meters altitude, epiphyte in forest, pseudobulbs, leaves and peduncle dark green, March 15, 1948, *F. Woytkowski 35473* (TYPE in Herb. Univ. Calif.; ISOTYPE in Herb. Ames No. 65449); same locality, at 1900 meters altitude, epiphyte in shady forest, mid-nerve of leaf yellowish, lip with seven orange spots in the center, March 8, 1948, *F. Woytkowski 35428*.

EXPLANATION OF THE ILLUSTRATION

PLATE XLI. EPIDENDRUM BREVIACEMUM *C. Schweinfurth*. 1, plant, natural size. 2, lateral sepal, three times natural size. 3, dorsal sepal, three times natural size. 4, petal, three times natural size. 5, column and lip, three times natural size.

Drawn by DOROTHY H. MARSH



EPIDENDRUM
breviracemum
C. Schweinf.

EXPLANATION OF THE ILLUSTRATION

PLATE XLII. EPIDENDRUM CRASSUM *C. Schweinfurth.*
1, plant, one half natural size. 2, flower, expanded,
two and one half times natural size. 3, column and
lip, from side, four times natural size.

Drawn by DOROTHY H. MARSH



1

D.H.M.

3



2



EPIDENDRUM
crassum
C. Schweinf.

EXPLANATION OF THE ILLUSTRATION

PLATE XLIII. EPIDENDRUM LACERATUM *C. Schweinfurth*. 1, plant, twice natural size. 2, flower, expanded, five times natural size. 3, column and lip, three quarters view, five times natural size.

Drawn by DOROTHY H. MARSH

EPIDENDRUM *laceratum*
C. Schweinfurth

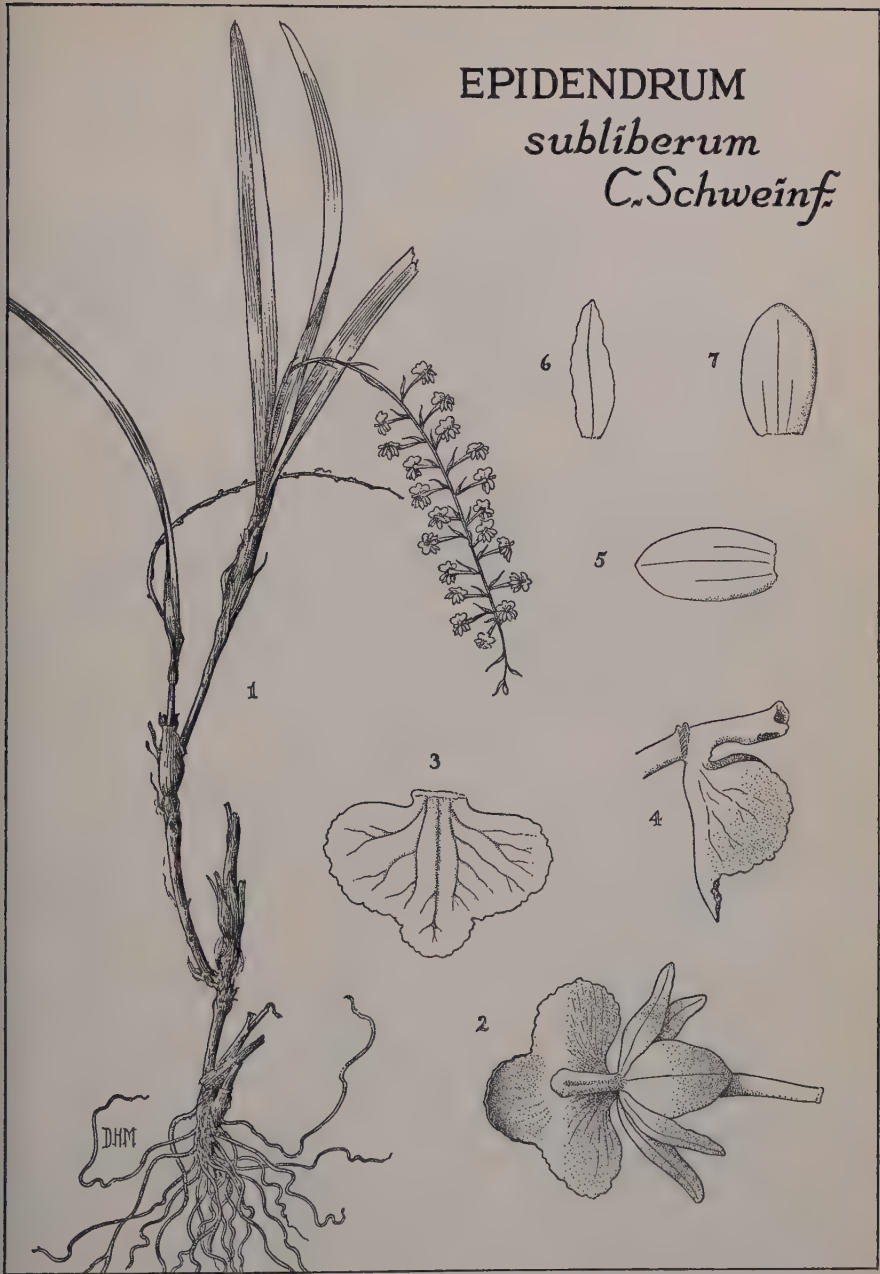


EXPLANATION OF THE ILLUSTRATION

PLATE XLIV. EPIDENDRUM SUBLIBERUM *C. Schweinfurth*. 1, plant, about seven eighths natural size. 2, flower, natural position, five times natural size. 3, lip, expanded, five times natural size. 4, lip and column, from side, five times natural size. 5, lateral sepal, five times natural size. 6, petal, five times natural size. 7, dorsal sepal, five times natural size.

Drawn by DOROTHY H. MARSH

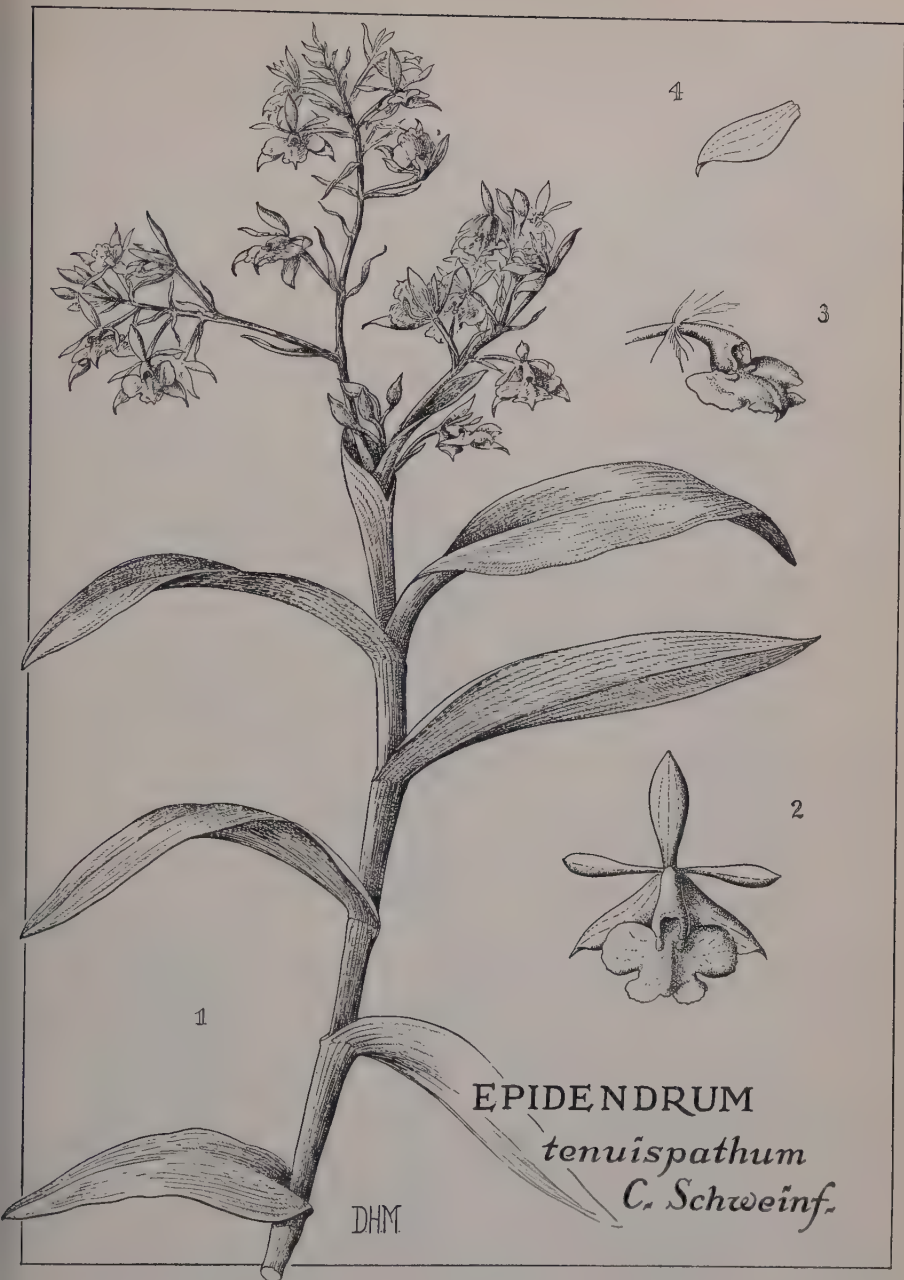
EPIDENDRUM
subliberum
C. Schweinf.



EXPLANATION OF THE ILLUSTRATION

PLATE XLV. EPIDENDRUM TENUISPATHEM *C. Schweinfurth*. 1, plant, one half natural size. 2, flower, expanded, natural size. 3, column and lip, three quarters view, natural size. 4, lateral sepal, natural size.

Drawn by DOROTHY H. MARSH



EXPLANATION OF THE ILLUSTRATION

PLATE XLVI. ORLEANESIA PERUVIANA *C. Schweinfurth*. 1, plant, one half natural size. 2, flower (without lip), three quarters view, five times natural size. 3, petal, four times natural size. 4, dorsal sepal, four times natural size. 5, lateral sepal, four times natural size. 6, lip, three times natural size.

Drawn by DOROTHY H. MARSH



EXPLANATION OF THE ILLUSTRATION

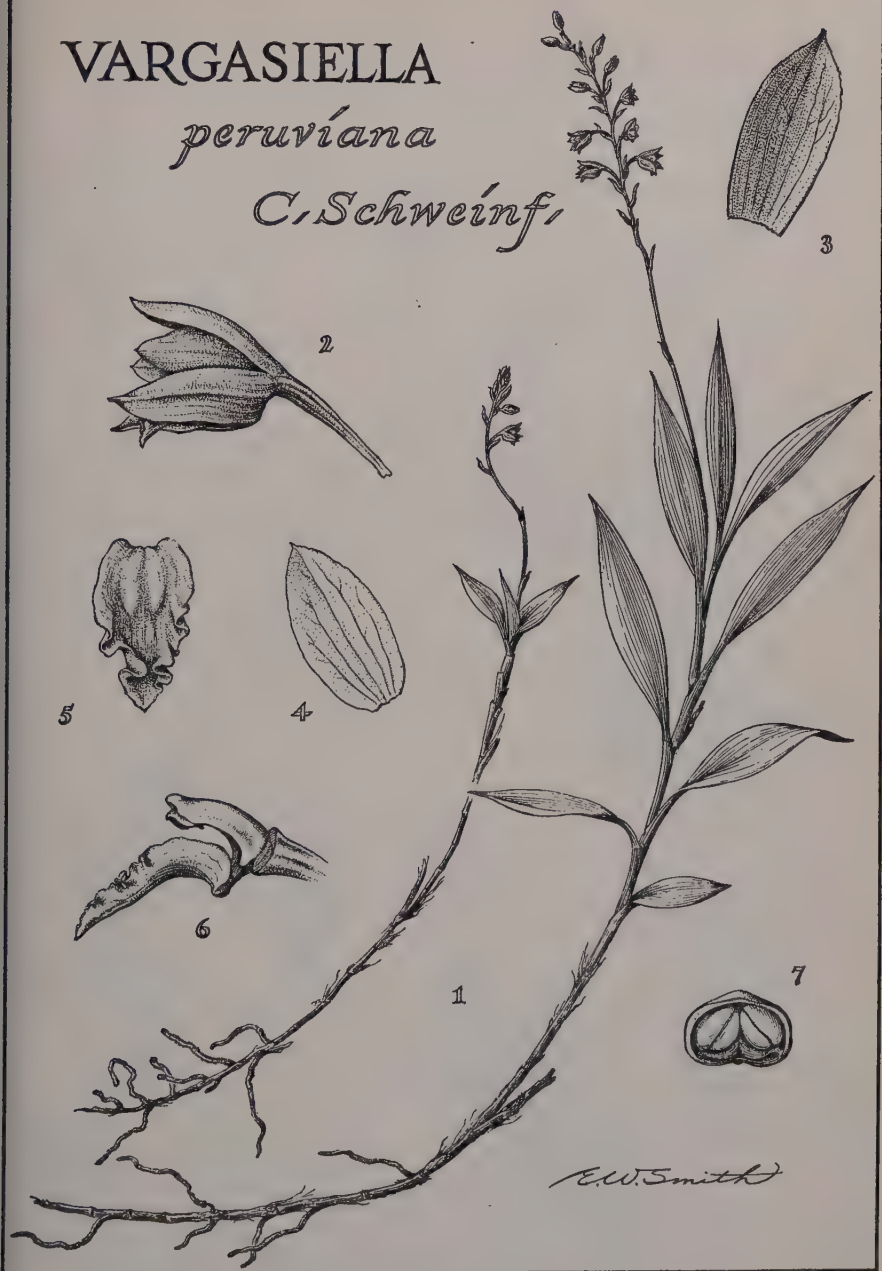
PLATE XLVII. *VARGASIELLA PERUVIANA* C. Schweinfurth. 1, plants, one fourth natural size. 2, flower, from side, one and one half times natural size. 3, dorsal sepal, twice natural size. 4, petal, twice natural size. 5, lip, expanded, from above, twice natural size. 6, column and lip, from side, twice natural size. 7, anther with pollinia, from below, eight times natural size.

Drawn by ELMER W. SMITH

VARGASIELLA

peruviana

C. Schweinf.



EXPLANATION OF THE ILLUSTRATION

PLATE XLVIII. BUESIELLA PUSILLA *C. Schweinfurth*.
1, plants, two thirds natural size. 2, flower-bud,
from side, eight times natural size. 3, flower, par-
tially expanded, from side, six times natural size.
4, petal, six times natural size. 5, lip, expanded,
twelve times natural size. 6, anther with pollinia,
from below, twenty times natural size.

Drawn by ELMER W. SMITH

BUESIELLA *pusilla*
C. Schweinfurth

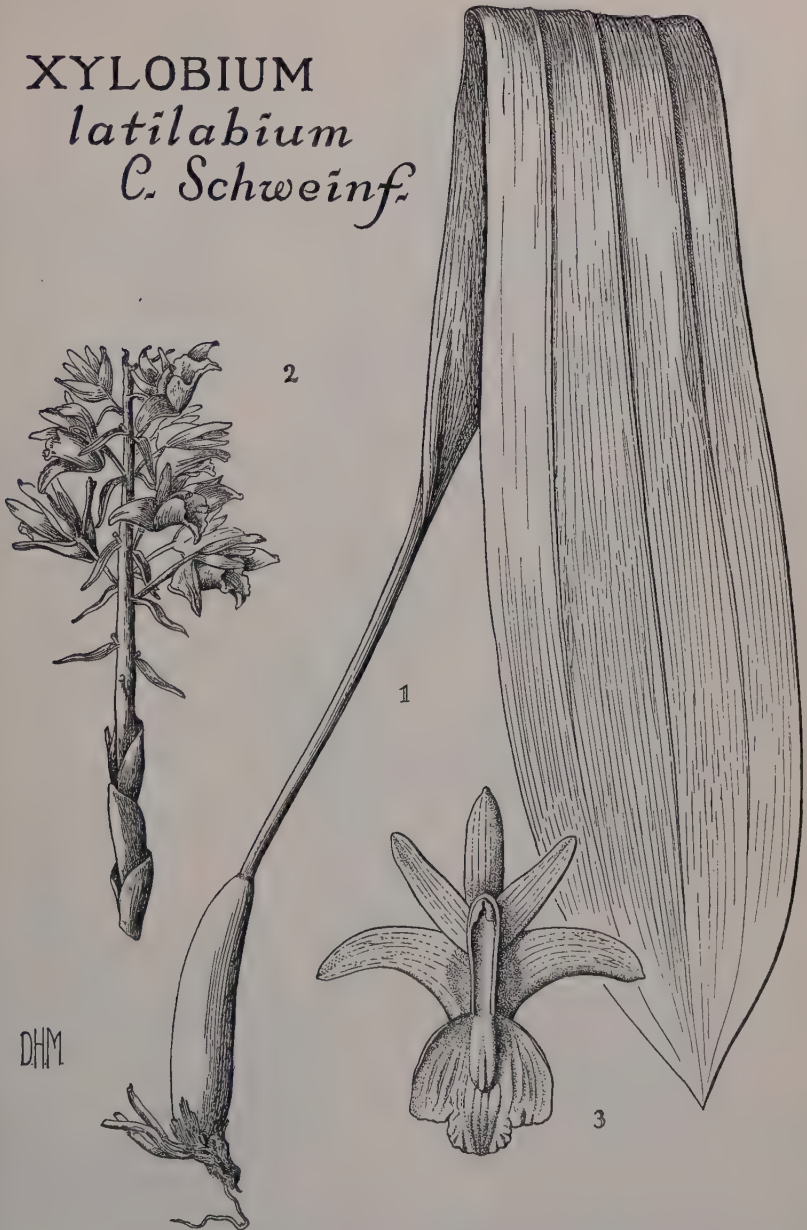


EXPLANATION OF THE ILLUSTRATION

PLATE XLIX. XYLOBIUM LATILABIUM *C. Schweinfurth*.
1, plant, one half natural size. 2, inflorescence,
one half natural size. 3, flower, expanded, natural
size.

Drawn by DOROTHY H. MARSH

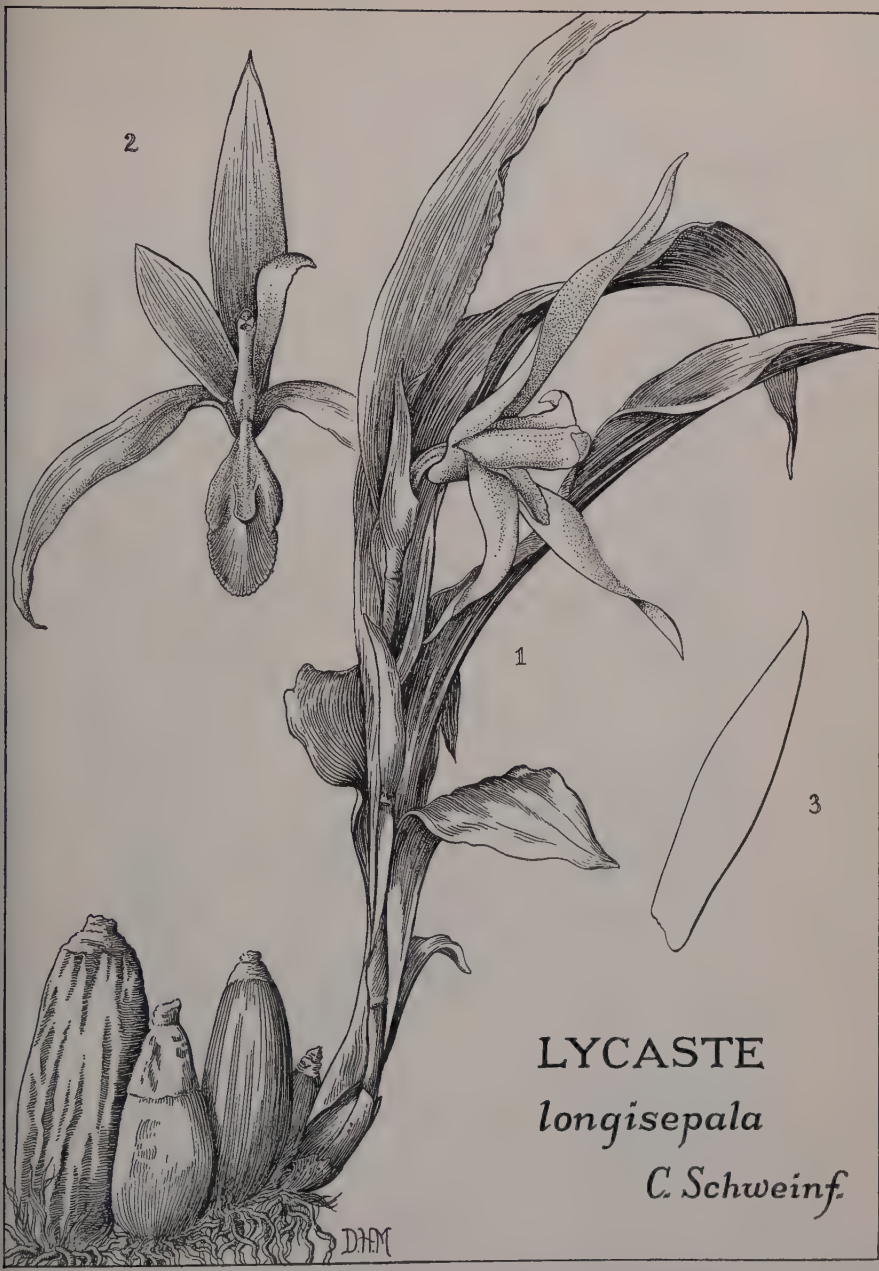
XYLOBIUM
latilabium
C. Schweinf.



EXPLANATION OF THE ILLUSTRATION

PLATE L. *LYCASTE LONGISEPALA* C. Schweinfurth.
1, plant, two fifths natural size. 2, flower, partially
expanded, one half natural size. 3, lateral sepal,
expanded, one half natural size.

Drawn by DOROTHY H. MARSH



LYCASTE
longisepala

C. Schweinf.

EXPLANATION OF THE ILLUSTRATION

PLATE LI. ZYGOPETALUM KLUGII C. Schweinfurth.
1, plant, one half natural size. 2, flower, expanded,
natural size. 3, column and lip, from side, natu-
ral size.

Drawn by DOROTHY H. MARSH

ZYGOPETALUM *Klugii*
C. Schweinf.



EXPLANATION OF THE ILLUSTRATION

PLATE LII. MAXILLARIA ANGUSTIBULBOSA *C. Schweinfurth*. 1, plant, one half natural size. 2, flower, expanded, natural size.

Drawn by DOROTHY H. MARSH



MAXILLARIA
angustibulbosa
C. Schweinf.

EXPLANATION OF THE ILLUSTRATION

PLATE LIII. MAXILLARIA FASCICULATA *C. Schweinfurth*. 1, plant, seven eighths natural size. 2, lateral sepal, five times natural size. 3, petal, five times natural size. 4, dorsal sepal, five times natural size. 5, column and lip, three quarters view, five times natural size. 6, flower, natural position, five times natural size.

Drawn by DOROTHY H. MARSH

MAXILLARIA *fasciculata*

C. Schweinf.



EXPLANATION OF THE ILLUSTRATION

PLATE LIV. MAXILLARIA SPATHULATA *C. Schweinfurth*. 1, plants, five eighths natural size. 2, flower, from side, twice natural size. 3, dorsal sepal, three times natural size. 4, petal, three times natural size. 5, lip, expanded, three times natural size.

Drawn by DOROTHY H. MARSH

MAXILLARIA
spathulata
C. Schweinf.

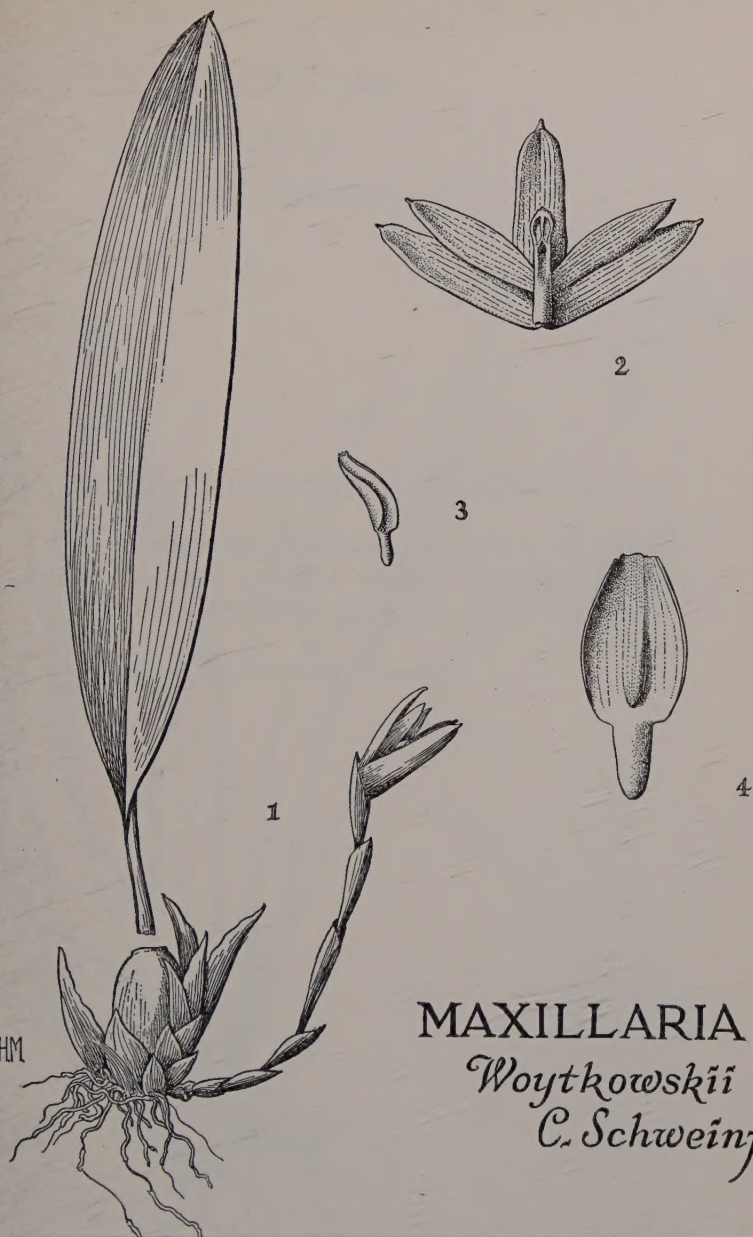


EXPLANATION OF THE ILLUSTRATION

PLATE LV. MAXILLARIA WOYTKOWSKII C. Schweinfurth. 1, plant, five eighths natural size. 2, flower, expanded (without lip), natural size. 3, lip, three quarters view, natural size. 4, lip, expanded, twice natural size.

Drawn by DOROTHY H. MARSH

DHM



MAXILLARIA
Woytkowskii
C. Schweinf.

EXPLANATION OF THE ILLUSTRATION

PLATE LVI. *TRICHOPILIA GRACILIS* C. Schweinfurth.
1, plant, one half natural size. 2, flower, expanded,
natural size. 3, lip and column, from side, natu-
ral size.

Drawn by DOROTHY H. MARSH

TRICHOPILIA
gracilis
C. Schweinf.



